

## 4. Weekly report of MARIA S. MERIAN Expedition MSM127

### Las Palmas - Las Palmas (Gran Canaria)

18.03. – 20.04. 2024

The fourth week also started somewhat unfortunate: Right before MeBo70 was deployed for a double drilling at a promising location on the northern slope of the Mauritania Canyon, there was another hydraulic problem - the lower chuck that holds the drill pipe in the hole could not be closed. After two days of intensive work by the MeBo technicians, the malfunction was localized and fixed, and the drill rig could be used on a further cold-water coral hill in area D at 17°N, to which we had returned in the meantime. Again, MeBo70 was able to land on the top of the coral mound in an extremely precise maneuver and could be aligned into a vertical position, which is the prerequisite for a the safe handling of the core barrels. Also for this site we can report that it was successfully drilled to a maximum depth of 72.80 m with a recovery of 93%, including a complete borehole logging of magnetic susceptibility and natural gamma ray. Nevertheless, the base of the reef could not be reached with this drilling, the hill rises much higher above the continental slope off Mauritania and therefore provide no information about when the initial reef formation began in this region. Right now - Sunday noon - a fourth reef mound drilling has ended, 70.3 mbsf deep and with 83% recovery.

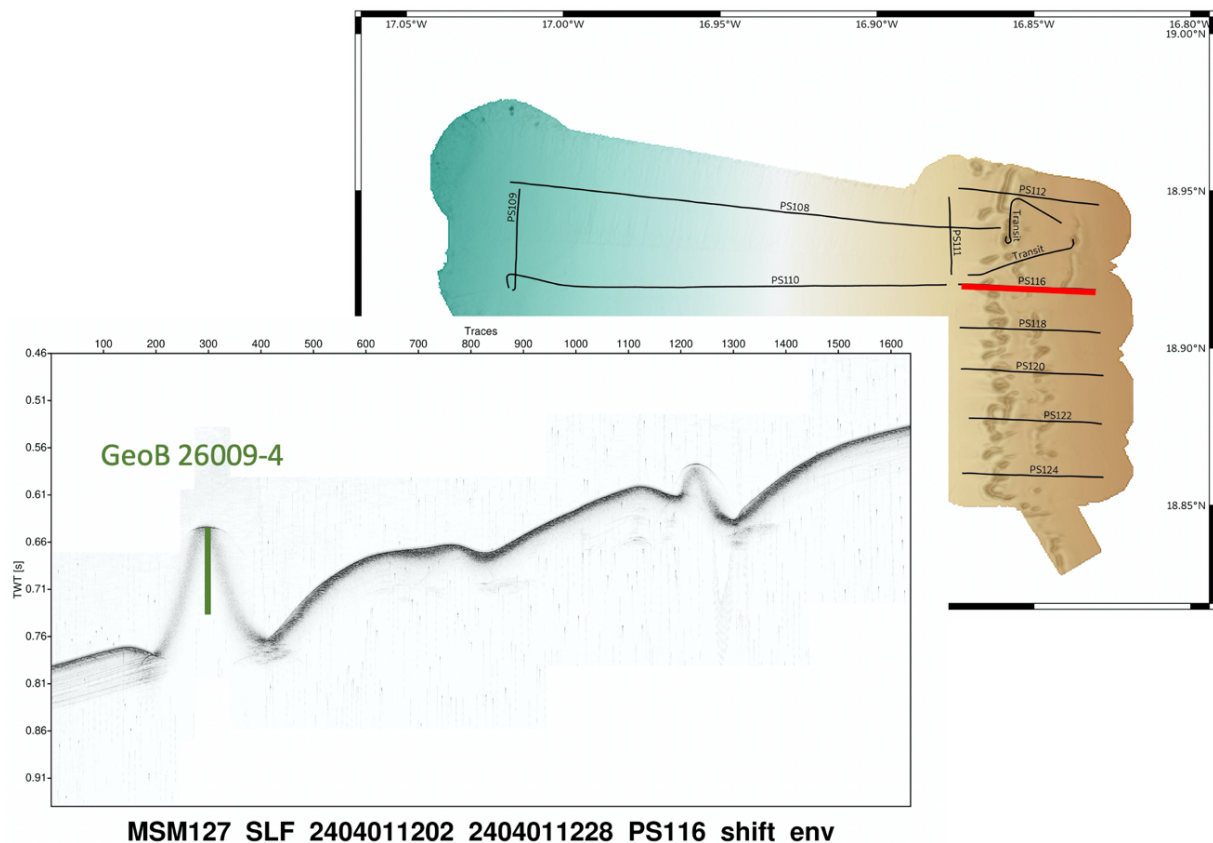


Fig: Parasound profile across the coral hills in W-E direction. The profile shows the steep morphology of reef mounds, but also the strong signal scattering by corals in the sediment.

The drill cores from the coral area and the additional on-mound gravity cores are not opened on board for the time being. Immediately after the cruise, they will be scanned as whole rounds in a computer tomograph in order to analyze the content of cold water corals and their orientation within the sediment, but also to distinguish reef formation phases from intermediate deposits, before the cores are cut open lengthwise. These scanning analyses provide valuable data on the role of coral frames as sediment traps, which is the prerequisite for the formation of a mound structure that provides a habitat for the many other species of marine organisms. Cold-water coral reefs are widespread in the world and occur on many continental margins from 70°N to 55°S. The cold-water coral province off Mauritania is one of the largest in the world with a 400 km long extension, but - as reported previously - currently to a large part not active.

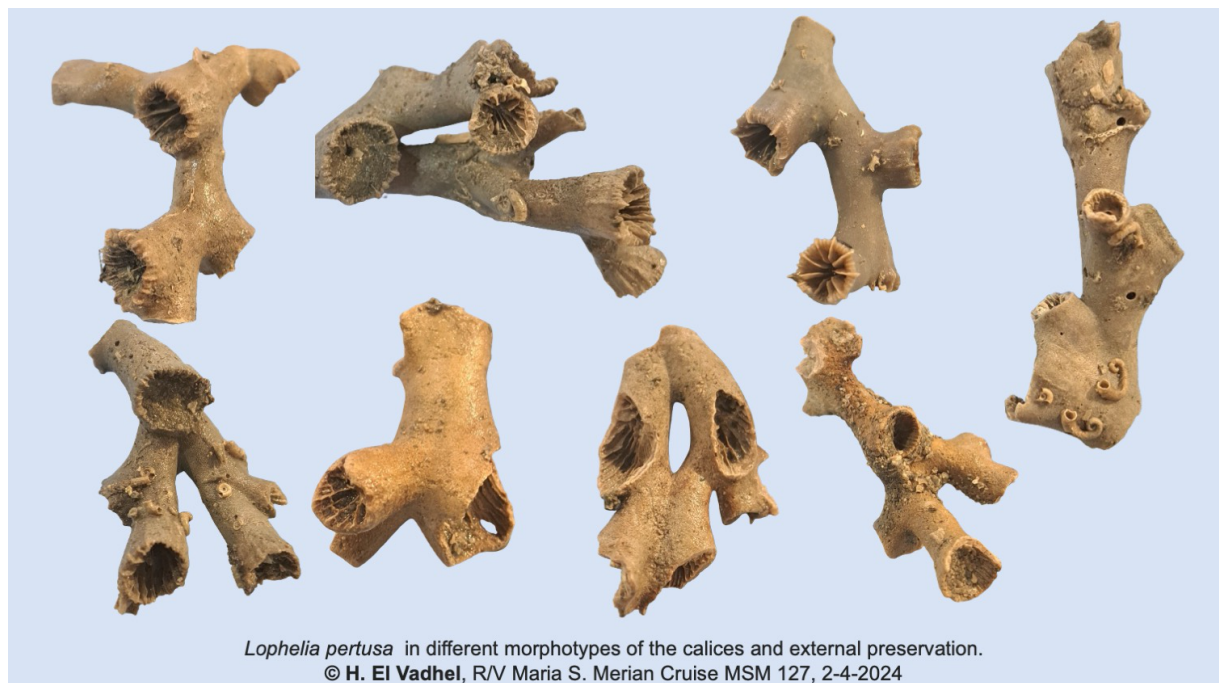


Fig: Fragments of dead corals of the deep-water species *Lophelia pertusa*, which is the dominant cold-water coral species in the Mauritania Reef Province area.

After four weeks on board, the mood is still good, but we are already looking forward, the first chapters of the cruise report are prepared, and the packing lists for the return transport are put together. But there is still a final busy week ahead.

Best regards from board Maria S. Merian,

Torsten Bickert

14. April 2024